

CLAIMS

What is claimed is:

1 1. A disposable absorbent article comprising:
2 a topsheet;
3 a backsheet; and
4 an absorbent core disposed therebetween;
5 wherein at least one of said backsheet, topsheet, and absorbent core is
6 constructed of an absorbent composite including
7 an absorbent layer of hydratable fine fibers in the form of microfibril
8 obtained from cellulose or a derivative thereof, and super absorbent polymer (SAP)
9 particles bonded together by said hydratable fibers, and
10 a nonwoven substrate supporting said absorbent layer, said absorbent
11 layer being coated thereupon.

1 2. The article of claim 1, further comprising a pair of longitudinally-
2 extending, upstanding cuffs spaced laterally from said core, each said cuff including
3 a folded portion of said topsheet and a longitudinally-extending absorbent composite
4 secured within said folded portion, said longitudinally-extending absorbent composite
5 including
6 an absorbent layer of hydratable fine fibers in the form of microfibril obtained
7 from cellulose or a derivative thereof, and super absorbent polymer (SAP) particles
8 bonded together by said hydratable fibers, and
9 a nonwoven substrate supporting said absorbent layer, said absorbent layer
10 being coated thereupon.

1 3. The article of claim 2, wherein said core includes said first absorbent
2 composite.

1 4. The article of claim 3, wherein said first absorbent composite and said
2 longitudinally extending absorbent composites of said cuffs are sections of one

1 continuous absorbent composite structure positioned about a crotch region of said
2 article.

1 5. The article of claim 2, wherein said nonwoven substrate is a section
2 of said topsheet.

1 6. The article of claim 1, wherein said backsheet is formed from said
2 absorbent composite, said absorbent layer including a low cross link SAP adapted to
3 gel block upon wetting such that said backsheet is substantially impervious when wet
4 and said backsheet is breathable when dry.

1 7. The absorbent article of claim 6, wherein said SAP are water-
2 swellable particles included in a concentration in the range of about 50g/m² to about
3 500 g/m².

1 8. The absorbent article of claim 1, wherein said absorbent core includes
2 a prefabricated sheet of said absorbent composite.

1 9. The absorbent article of claim 8, wherein said absorbent composite of
2 said core includes a plurality of said absorbent layers, said layers being spaced apart
3 from one another such that non-coated surface sections of said substrate are exposed
4 therebetween.

1 10. The absorbent article of claim 9, wherein said non-coated surface
2 sections form wicking zones between said absorbent layers.

1 11. The absorbent article of claim 8, wherein said absorbent layers are
2 laterally spaced, elongated segments.

1 12. The absorbent article of claim 8, wherein said absorbent composite
2 layer has a corrugated configuration characterized by a plurality of pleats at which
3 distinct adjacent sections of said absorbent composite are mutually adhered.

1 13. The absorbent article of claim 1, wherein said absorbent composite
2 forms said backsheet and said core, said backsheet having a section providing said
3 nonwoven substrate and said absorbent layer being concentrated at a crotch region
4 of said backsheet to form said absorbent core.

1 14. The absorbent article of claim 1, wherein said core includes said
2 absorbent composite, said absorbent composite further including one or more of said
3 absorbent layers disposed over said nonwoven substrate.

1 15. The absorbent article of claim 1, wherein said absorbent composite
2 further includes a concentration of pulp material, said absorbent layer and said
3 nonwoven substrate forming a sheet disposed about said pulp concentration such that
4 said pulp concentration is disposed between at least two layers of said sheet of
5 absorbent layer and nonwoven substrate.

1 16. The absorbent article of claim 1, wherein said absorbent composite
2 forms at least a portion of said topsheet and said absorbent core, said topsheet having
3 a section providing said nonwoven substrate and said absorbent layer forming said
4 core.

1 17. The absorbent article of claim 1, wherein said absorbent layer includes
2 low-crosslink, low gel strength SAP having free swell capacities of over 40 g/g and
3 such that said absorbent layer is adapted to gel block upon wetting so as to be
4 substantially impervious but is breathable when dry.

1 18. A disposable absorbent article comprising:
2 a topsheet;
3 a backsheet;
4 an absorbent composite including
5 an absorbent layer of hydratable fine fibers in the form of microfibril
6 obtained from cellulose or a derivative thereof, and absorbent polymer (SAP)
7 particles bonded together by said hydratable fibers, and
8 a nonwoven substrate supporting said absorbent layer, said absorbent
9 layer being coated thereupon; and
10 wherein said absorbent layer is disposed between the topsheet and backsheet,
11 and generally centrally at a location identified as a crotch region, said absorbent layer
12 providing an absorbent core for absorbing bodily exudates received in said crotch
13 region.

1 19. The article of claim 18, wherein said absorbent layer is supported
2 underneath a section of said topsheet, such that said section of said topsheet provides
3 said nonwoven substrate of said absorbent composite.

1 20. The article of claim 18, further comprising a pair of longitudinally-
2 extending, upstanding cuffs spaced laterally from said absorbent core, each said cuff
3 including a folded portion of said topsheet and a longitudinally-extending absorbent
4 composite secured within said folded portion, said longitudinally-extending absorbent
5 composite including
6 an absorbent layer of hydratable fine fibers in the form of microfibril obtained
7 from cellulose or a derivative thereof, and super absorbent polymer (SAP) particles
8 bonded together by said hydratable fibers, and
9 a nonwoven substrate supporting said absorbent layer, said absorbent layer
10 being coated thereupon.
11

1 21. The article of claim 18, wherein said absorbent composite located at
2 said crotch region and said longitudinally extending absorbent composites of said
3 cuffs are sections of one continuous absorbent composite structure positioned about
4 the crotch region.

1 22. The article of claim 18, wherein said absorbent layer is supported on
2 said backsheet, such that a section of said backsheet provides said nonwoven
3 substrate of said absorbent composite.

1 23. The article of claim 20, wherein said absorbent layer includes a low
2 cross link SAP adapted to gel block upon wetting such that said backsheet is
3 substantially impervious when wet and said backsheet is breathable when dry.

1 24. The absorbent article of claim 18, wherein said SAP are water-
2 swellable bodies included in a concentration of about 20 gsm and said nonwoven
3 substrate is an SMS having a basis weight in the range of about 10 gsm to 60 gsm.

1 25. The absorbent article of claim 18, wherein said absorbent composite
2 of said core includes a plurality of said absorbent layers, said layers being spaced
3 apart from one another such that non-coated surface sections of said substrate are
4 exposed therebetween, said non-coated surface sections forming wicking zones
5 between said absorbent layers.

1 26. The absorbent article of claim 25, wherein said absorbent layers are
2 laterally spaced, elongated segments.

1 27. The absorbent article of claim 18, wherein said absorbent composite
2 layer has a corrugated configuration characterized by a plurality of pleats at which
3 distinct adjacent sections of said absorbent composite are mutually adhered.
4

1 28. The absorbent article of claim 18, wherein said absorbent composite
2 further includes a concentration of pulp material, said absorbent layer and said
3 nonwoven substrate forming a sheet disposed about said pulp concentration such that
4 said pulp concentration is disposed between at least two layers of said sheet of
5 absorbent layer and nonwoven substrate.

1 29. The absorbent article of claim 18, wherein a plurality of sections of
2 said topsheet is spaced from said topsheet and alternating sections of said topsheet
3 are secured to said backsheet, each said spaced topsheet section including one or
4 more of said absorbent layers such that said topsheet forms said nonwoven substrate
5 of said absorbent composite.

30. In a disposable absorbent having an absorbent core disposed between a topsheet and a backsheet, a prefabricated absorbent composite comprising:

an absorbent layer of hydratable fine fibers in the form of microfibril obtained from cellulose or a derivative thereof, and absorbent polymer (SAP) particles bonded together by said hydratable fibers, and

a nonwoven substrate supporting said absorbent layer, said absorbent layer being coated thereupon;

wherein said absorbent layer is disposed between the topsheet and backsheet, and generally centrally in the article at a location identified as a crotch region, said absorbent layer providing an absorbent core for absorbing bodily exudates received by the crotch region.

1 31. The absorbent composite of claim 31, wherein said absorbent layer is
2 supported underneath a section of the topsheet, such that said section of topsheet
3 provides said nonwoven substrate of said absorbent composite.

1 32. The absorbent composite of claim 30, wherein the article includes a
2 pair of longitudinally-extending, upstanding cuffs spaced laterally from said
3 absorbent core, each cuff having two sheet layers, and wherein said absorbent
4 composite includes two longitudinally-extending composite sections extending
5 upwardly from the crotch region into the cuffs and between the cuff layers, said
6 absorbent composite forming an absorbent structure about the crotch region.

1 33. The absorbent composite of claim 30, wherein said absorbent layer is
2 supported on a section of the backsheet, such that said backsheet section provides
3 said nonwoven substrate of said absorbent composite.

1 34. The absorbent composite of claim 33, wherein said absorbent layer
2 includes a low cross link SAP adapted to gel block upon wetting such that said

1 backsheet section is substantially impervious when wet and said backsheet section
2 is breathable when dry.

1 35. The absorbent composite of claim 34, wherein said low cross-link
2 SAP is low-gel strength SAP characterized by a free swell capacity greater than about
3 40 g/g.

1 36. The absorbent composite of claim 30, wherein said SAP are water-
2 swellable bodies included in a concentration of about 50 gsm to 500 gsm.

1 37. The absorbent composite of claim 30, wherein said absorbent
2 composite of said core includes a plurality of said absorbent layers, said layers being
3 spaced apart from one another such that non-coated surface sections of said substrate
4 are exposed therebetween, said non-coated surface sections forming wicking zones
5 between said absorbent layers.

1 38. The absorbent composite of claim 30, further comprising a coating of
2 mineral oil over the SAP particles of the absorbent layer, said coating being adapted
3 to retard the initial receipt of liquid by the SAP in the absorbent layer.